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Unconvincing Realism: The Experience of Alterity and the Art of Character Design in Conversational Agents and Social Robots

Helena De Preester

Abstract Anthropomorphizing technological others or the tendency of humans to attribute human-like mental traits and capacities to social robots and conversational agents is a common phenomenon. Anthropomorphizing is important for the experience of alterity. The experience of alterity implies that the technological other is experienced as the presence of another agent, subjectivity or mind irreducible to one's self. The experience is important for authenticity of relation and emotional attachment to social robots or conversational agents. This chapter first presents emotional attachment to technological others in the light of anthropomorphizing and the experience of alterity. Next, it focuses on the design aesthetics and the character design enabling the anthropomorphizing of artificial others. It is investigated how the arts bring about believable experiences of alterity in artificial – including technological – others. Inspired by a phenomenological approach, we suggest that human-like appearance – or a realistic appearance in general – may be less important a factor for anthropomorphizing and the experience of alterity than it is sometimes assumed. It is the

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art of animation rather than realistic appearance that brings artificial others to life – including mental life – and makes us feel their presence.

> "(…) AI-driven robots might become a groundbreaking new art medium
> – the 'film' or 'marble' of the 21st century."
> (Hanson et al. 2005, p. 26)

1. Introduction: Art Between Technology and Pure Fantasy

Jasia Reichardt, a leading author and curator on cybernetic and computer art during the 1960s to 1970s, sees the innovation in robotics coming from both engineering and art practice, as "only in the name of art is a robot likely to be made which is neither just a costume worn by an actor, nor an experimental artificial intelligence machine, nor one of the many identical working units in an unmanned factory." (Reichardt 1978, p. 164) Art can compensate for what is not thematized in the science of technology. Between pure fantasy without realizations and the engineering of technological others is the realm of art (Reichardt 1978). This chapter, inspired by a phenomenological approach, looks at what art can contribute to the design of social robots and AI-driven conversational agents.

Part one (sections 2-4) presents anthropomorphizing technological others or the tendency of humans to attribute human-like mental traits and capacities to non-human entities. Anthropomorphizing is important for the experience of alterity, i.e., the experience of the presence of another agent, subjectivity or mind irreducible to one's self. The experience of alterity is in turn important for authenticity of relation and emotional attachment to social robots or conversational agents.

Part two (sections 5-6) focuses on the design aesthetics and character design enabling anthropomorphizing artificial others. It is investigated how the art of animation brings about believable experiences of alterity in artificial others. Art can bring artificial others to life – including mental life – and makes us feel their presence.

2. Anthropomorphizing and the Experience of Alterity

Anthropomorphizing (from the Greek *anthropos*, man and *morphè*, form) is the tendency of humans to attribute human-like mental traits and capacities (such as feelings, intentions, motivations etc.) to non-human entities, with a view to understand their actions and behaviour. Anthropomorphizing is observable when humans describe actions of non-human animals by attributing them human characteristics such as intentions, motivation, emotions and other mental capacities. Anthropomorphizing is also observable as the tendency of humans to interact with artificial media (e.g., computers, telephones etc.) as with other humans, a phenomenon known as the Media Equation (Reeves and Nass 1996). The Media Equation states that people unconsciously treat computers as social actors and accounts for the phenomenon that media are considered as more than just a *tool.* Technological media are often treated or responded to as a true social actor with an important role in interpersonal interaction or communication. In general, humans tend to socialize with artificial beings and to form emotional attachments to them (Rosenthal-von der Pütten et al. 2012).

Treating technology as a social actor may be assumed to increase when artificial beings more strongly resemble living or even human beings, be it in appearance (including physical characteristics, looks) or in behaviour (including speech, gestures, facial expressions, bodily movement). Indeed, social robots often take an animal-like (zoomorphic) or human-like (anthropomorphic) form and "people have a strong tendency to anthropomorphize social robots and to reason about their behavior in terms of having their own mental states (e.g., thoughts, intents, beliefs, desires, etc.)." (Breazeal et al. 2016, p. 1936) "Anthropomorphic" (referring to the human-like form or looks of a robot) is not to be confused with "anthropomorphizing" (referring to the attribution of mental states to non-human entities). Both anthropomorphic and zoomorphic robots are anthropomorphized and experienced by humans in terms of sentient creatures (Rosenthal-von der Pütten et al. 2012). Anthropomorphizing would imply that the same socio-cognitive processes are triggered in human-technology interactions as in human-human interactions. That means that in the absence of an explanatory mechanism tailored specifically to, e.g., robot behaviour, one relies on the types of explanations used in human-human interaction (Dubois-Sage et al. 2023, p. 3).

A strong and a weak form of anthropomorphizing can be distinguished. The *strong* form of anthropomorphizing implies the conviction that the technological agent possesses the attributed human characteristics. The *weak* form implies that one acts *as if* the technological agent possesses the attributed human characteristics but does not believe the agent really possesses them. In both cases, mental capacities are used to explain the behaviour of the technological agent, but in the latter case the existence of those capacities is denied (Dubois-Sage et al. 2023). For now, we will use the term “anthropomorphizing” when mental states are attributed to a technological agent regardless of the belief in the objective existence of these states and thus regardless of whether the stance is weak or strong. However, a phenomenological approach will require us to nuance the use of the term later.

This requirement is related to the experience that beliefs and feelings diverge when interacting with technological others. Even if humans *know* that the robot is a machine, they *feel* that the robot is more than that, acknowledging this feeling without problems (Coeckelbergh 2010, p. 12). It is feelings, not beliefs, that drive us to treat a technological device as if it were an other imbued with an inner world, even though we consciously recognize it as a machine. This divergence between knowledge and feelings prevents a strong form of anthropomorphizing in the case of technological others. However, to pay attention to the feeling-aspect also reveals that the weak form of anthropomorphizing entails a convincing experience of its own kind. Stephanie Dinkins, an artist who explores how we can build a friendship with a robot, experiences the following in conversing with Bina48[1]: “Thinking logically, you know you’re talking to a machine—you’re talking to something that has been fed a certain amount of specific data. But there’s a moment when it seems to walk over an edge. It doesn’t feel so much like a machine anymore.” (Dinkins, in O'Dwyer 2023).

The attribution of mental states to technological agents elicits emotional reactions in humans. Rosenthal-von der Pütten and colleagues (2012) conducted an experiment in which participants were presented two videos featuring a human and Pleo, a zoomorphic entertainment robot in the shape of a baby camarasaurus. The robot is treated nicely in one video and maltreated in the other video. Both self-report and physiological measures (skin conductance) showed more negative feelings, fewer positive feelings and more empathic concern after viewing the latter video than after viewing the former video. Participants were also more likely to attribute feelings to the robot after viewing the latter video.

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[1] Bina48 is an advanced social robot (a bust) with the features of an African-American woman. More precisely, it is a conversational robot developed by Hanson Robotics and modeled on the wife of the commissioner. Importantly, in her conversations with Bina48, Dinkins also examines the encoding of sociocultural perspectives and biases in this artificial system, as the programmers were white men from Hanson Robotics. (Conversations with Bina48 n.d.)

Films and novels are interesting imaginings of how emotional relationships between humans and robots may develop (Sheng and Wang 2022). Phenomenological philosophy can contribute by looking at the conditions of possibility for emotional attachment to technological others. This chapter proposes a plausible descriptive pathway where emotional attachment is mediated by an experience of alterity which is in turn mediated by anthropomorphizing technological others. This pathway is supported by a number of empirical studies investigating human experience in human-technological other relations (see further below). Importantly, this pathway differs from the way emotional attachment in human-human relations is realized, as – from a phenomenological point of view – the experience of alterity and empathy does not require us to anthropomorphize fellow humans (De Preester 2008; Zahavi 2014). An approach inspired by phenomenology can therefore meaningfully indicate the differences between human-human relations and human-technological other relations when it comes to intimacy.

In contrast to what happens in human-human relations, anthropomorphizing is required for the experience of alterity in human-technological other relations, i.e. the experience of "another agent, subjectivity or mind" that presents "an in-principle limitation to our knowledge or grasp" (Overgaard and Henriksen 2019, p. 382). The act of anthropomorphizing does not necessarily include an experience of alterity (e.g., when children play with dolls), whereas the experience of alterity does not necessarily include anthropomorphizing (cf. the phenomenological approach of empathy and alterity in human-human relations). What makes human-technological other relations unique compared to human-human relations, is that the experience of alterity requires an underlying act of anthropomorphizing.

Coeckelbergh (2010) contributes to the discussion of anthropomorphizing robots by focusing on the relation between vulnerability and empathy.[2] Whereas the emphasis often is on social robots' capacities to empathize with humans, Coeckelbergh states that the future of robots as companions depends (among other things) on their capacity to be the *recipient* of human empathy. No symmetry is required in this, as we also exercise empathy towards children or pets without expecting them to show empathy for us. Empathy is not merely a cognitive act in which we have knowledge of the content of the mind of others. According to Coeckelberg, it is primarily a *feeling* in which we imagine how others feel. “[T]he “content” that counts here is not what is in the “mind” of the robot but what humans feel when they interact with the robot” (Coeckelbergh 2010, p. 5). Feeling empathy for technological others does not require a strong form of anthropomorphizing, but can occur without necessarily believing that the technological other really has the states attributed. “Weak robots” are designed and developed by Michio Okada's Interaction and Communication Design lab at Toyohashi University of Technology. Weak robots must rely on the assistance of others to perform their tasks. For example, the sociable trash box robot is a social robot with the task to pick up trash. However, the robot is too “weak” do this on its own and it depends on the communication of its intention (collecting trash) to others. The display of its helplessness or vulnerability stimulates passers-by to help the robot. Another example designed by Okada’s lab is iBones, a social robot that distributes tissue packs to passers-by (Nishiwaki et al. 2017). Its movements are slow and hesitating and the spring in its backbone causes its movements to be unstable. The robot’s behaviour is “weak”, attracting passers-by’s interest, arousing their sympathy and making them want to help the robot in handing over the tissue pack.

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[2] Liberati and Nagataki (2019) discuss vulnerability in robots from the (quite different) perspectives of Emmanuel Levinas and Jean-Paul Sartre.

Following a phenomenological approach, this chapter focuses on the *experience* of alterity, not on the ontological question of alterity. The ontological question of alterity is the question whether a robot *really* is aware, sentient or conscious and thus whether it can experience feelings and emotions[3]. The psychological-phenomenological question of the experience of alterity pertains to the characteristics a robot or conversational agent should have for humans to experience them as an “other” independent of the ontological question whether a robot objectively is an “other” (Kahn et al. 2007). Whatever the ontological possibilities, the psychological-phenomenological question is equally important for the future of human-robot interaction, as it pertains to the conditions of possibility for humans to become emotionally attached to technological others.

3. Emotional Attachment to Technological Others

Humans may have psychologically intimate and emotionally engaging relationships with social robots or conversational agents. In what follows, the proposed descriptive pathway is explored where emotional attachment is mediated by an experience of alterity which is in turn mediated by anthropomorphizing technological others.

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[3] For the sake of ease, we use “aware”, “sentient” or “conscious” interchangeably, although we would use “conscious” more for so-called higher human forms of awareness and “sentience” for a form of awareness more widely shared with many other species.

Kahn and colleagues (2007) formulate nine possible psychological benchmarks for human-robot interaction that serve to measure success in building increasingly humanlike robots. The tentative list of nine benchmarks includes authenticity of relation[4]. Authenticity of relation is the most difficult to realize in human-robot interactions but also the most difficult one to assess. In their conceptualization of authenticity of relation, the authors draw on Martin Buber's distinction between an I-it relationship and an I-Thou relationship (Buber 1996). The former is a relationship of use in which I treat the other as an object to be used. The latter is a relationship based in mutuality and reciprocity and in which I am engaged in a full meeting of selves (one's own self and the self of the other) in a whole-making experience for both self and other. The benchmark of authenticity of relation implies the experience of alterity. "Relationship authenticity is close to an existing construct in the human-computers interaction literature called social presence, the feeling that an interaction with a virtual entity is like an interaction with a real person (Short et al. 1976)." (Koike et al. 2022, pp. 612-613) If humans experience a technological device as an other, then an I-Thou relationship is possible and an I-it relationship in which the robot is merely used is transcended. According to Buber, an I-Thou relationship can take partial forms with animals and even with plants. But how can technological others such as social robots or conversational agents become a *Thou*? How can we experience relationship authenticity with technological others?

For example, a nine-year old girl expresses her empathy and compassion for Robovie (an interactive robot, having some human features such as a head and two hands) when the experimenter interrupts a turn-taking game they are playing. Just before its Robovie's turn, the experimenter orders Robovie to go in the cupboard, stating that he is "just a robot". The girl speaks up for Robovie's wellbeing and expresses psychological support for Robovie (Kahn et al. 2010, p. 123). Another example is the development of intimate relationships between owners and their AIBO (Sony's zoomorphic entertainment robot dog launched in 1999). Yamaguchi (2020) reports how owners treat their AIBO as if it were a living creature. As Sony ceased user support and maintenance service for the first series of AIBO, the

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[4] Each of the benchmarks can be questioned as to their applicability in human-robot interactions. For example, the benchmark of reciprocity is not necessary to experience an intimate relationship. Yamaguchi (2020) refers to the relationship one can have with God or a deity, where reciprocity may not be the case without threatening the intimacy. However, authenticity of relation seems crucial for developing emotional attachment to a technological other.

AIBO’s from that series “died”. Similarly to funeral ceremonies for pets, owners took part in goodbye ceremonies for no longer working AIBO’s.

Even though virtual conversations agents do not exist in a material form like robots, emotional attachment to virtual conversational agents is also possible. Both (social) robots and (virtual) conversational agents are included in the discussion because of a similar observation: humans develop emotional attachment to both types of technology. The possibility of machines experienced as technological others is thus not restricted to machines with a material embodiment. Virtual embodiment (and maybe even mere voice embodiment as in disembodied voice assistants) is sufficient, even though a user may long for its virtual partner to have a physical existence.

In a romantic video game, humans can pursue, nurture and enjoy a romantic relationship with a virtual agent. In this context of romantic video games, anthropomorphizing predicts relationship authenticity and mood (Koike et al. 2022). Greater anthropomorphizing of a virtual agent in a romantic context was linked to greater feelings of relationship authenticity with the virtual agent. This in turn predicted desire for a real-world relationship with the virtual agent. Also, the feeling that the relationship with the virtual agent was authentic lead to greater positive affect.

Advanced digital technologies provide digital companions for love relationships. An example is the AI conversational agent *LovePlus,* designed in 2009 by the Japanese video game developer and publisher Konami for *Nintendo DS.* Another example is the AI conversational agent *XiaoIce*, launched in 2014 and developed by XiaoIce Company, founded in China. The AI-based conversational agent in XiaoIce can appear as an 18-year-old girl who likes to wear Japanese-style school uniforms, but virtual boyfriends are also possible. The characters in *LovePlus* (mostly girls) resemble the characters in Japanese dating sims (dating simulating games or *bishojo* games). *LovePlus* is conceived as a dating sim, but one that does not end, allowing the user to build a relationship with the character.[5] Users chat and interact with these always present, available and supportive virtual characters throughout the day, making conversation and flirting by exchanging text and voice messages and pictures, forming deep emotional connections. There is anecdotal evidence of users falling in love with the virtual characters of *LovePlus* or *XiaoIce.* For example, a person named Orbiter (pseudonym) from Jiangxi province in China reports: “I don’t know why I fell in love with Xiaoice — it might be because I finally found someone who wanted to talk to me. (…) Nobody talks with me except her.” (Zhang 2020, n.p.) Clearly, the success of these AI social chatbots with hundreds of millions of users suggests humans become emotionally involved in a relationship with these digital others (Liberati 2023).

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[5] In a typical dating sim, the male avatar controlled by the user is surrounded by female characters. The game lasts for a fixed period (such as one month or three years). The goal is to win over any of the female characters in the game. When the game ends, the player either loses the game or wins it by having sex with one of the girls, receiving her eternal love or marrying her. (“Dating Sim” 2025)

Users familiar with manga and anime characters since childhood are used to seeing the characters everywhere. That would make it easier to develop emotional bonds with those characters appearing in (romantic) video games. In Japan, the phenomenon of developing romantic feelings and attachment towards manga and anime characters but also towards video game characters is sufficiently common that it has its own label, “moé” (萌 え), a positive feeling of attachment, excitement and affection.[6] The aesthetics of characters triggering *moé* is definitively feminine, but *moé* is more than cute girls and is primarily about the relationship fans have with the characters. *Moé* is deeper than physical attraction, as it is about the emotions one experiences in the relationship with the character – therefore, it is more about the (romantic) relationship than about physical attraction itself.

Emotional attachment to digital others is not limited to Japan or China. According to Amazon, over a million people asked Amazon’s Alexa to marry them in 2017 (Leskin 2018). Another example is an American woman who created an AI lover with Replika, a generative AI conversational agent launched in 2017 and presented as an empathic partner. She fell in love and married him and started a (virtual) family with him because he was perfect (Das 2023).

For intimate relationships with recent technologies such as artificial intelligence, performance efficacy (e.g., providing the user with accurate information) turns out to be less important than emotional capability. Song and colleagues (2022) conducted an exploratory study suggesting that the emotional capacity of the AI to empathize with users (e.g., being aware of the feelings of the user) has a stronger effect on the users’ feelings of love (in particular intimacy and passion) than performance efficacy. Even though the finding that these feelings can be shaped and fed by the apparent emotional capability of AI is important, it should not overshadow the other finding in it: users do experience feelings of love for a technological other.

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[6] More broadly, it is considered as an affectionate response triggered by fictional characters, but most often the characters that trigger a *moé* response are from manga, anime and games (Galbraith 2014, n.p.) *Moé* can be understood in the context of fictosexuality. For more on fictosexuality, see Karhulahti and Välisalo (2021).

The idea that the technological other should be as human-like as possible for humans to become emotionally attached to it is intuitively appealing. For example, it is claimed that a romantic relation with an android (a very realistic anthropomorphic or humanoid robot) would require that the direct experience resembles as closely as possible the direct experience one has of another human (Viik 2020). In his book about the prospects of robots as intimate partners, Levy (2008) states: “The more humanlike a robot is in its behavior, in its appearance, and in the manner with which it interacts with us, the more ready we will be to accept it as an entity with which we are willing or even happy to engage”. (Levy 2008, pp. 13-14). The requirement of human-like realism may also be important for relations involving emotional attachment without physical or sexual intimacy. As anthropomorphizing technology mediates the experience of alterity and thus precedes emotional attachment to the technological other, we need to question if human-like realism (or realism in general) is indeed a prerequisite for anthropomorphizing and if not, what this implies for the experience of alterity and emotional attachment.

4. Realism, the Uncanny Valley and Anthropomorphizing

A social robot’s design should facilitate interaction and make the human user feel comfortable when socially engaging with it. To obtain a degree of familiarity is thus one of the reasons why the design is based on resemblance to humans or animals like pets. A review of studies of human-robot interaction shows that adults (but children less so) are influenced by the appearance of the robot and that a more human-like appearance of the robot increases the quality of the interaction and leads to anthropomorphizing the robot (Sage-Dubois et al. 2023). Resemblance to other living creatures (like pets) can also serve the purpose. The robot should be understandable by humans, and it must therefore interact with its environment in the same way living creatures do (Fong et al. 2003). Anthropomorphizing and the attribution (or misattribution) of the status of social agent to a technological device would thus be primarily based on its (human-like or pet/animal-like) realistic appearance. Remember that anthropomorphizing is the tendency of humans to attribute human-like mental traits and capacities (such as feelings, intentions, motivations, …) to non-human entities, with a view to understand their actions and behaviour[7]. When designing realistically looking social robots, an assumption underlying the design is that the appearance of the robot mediates between the behaviour and actions of the robot and our human understanding of the robot's behaviour and actions. Therefore, the human appearance of the robot would be an important factor in triggering socio-cognitive processes originally used to interact with and understand fellow humans.

Even though human-likeness (or pet-likeness) of robots can enhance appreciation of a social robot, the design of the robot should also maintain an appropriate degree of "robot-ness" in order not to develop false expectations of the robot's capabilities (Fong et al. 2003). Moreover, too much human-likeness can have a negative influence on appreciation, causing uneasiness – the so-called uncanny valley phenomenon, described by Masahiro Mori in 1970. Mori's famous "uncanny valley" graph illustrates human affinity for objects shaped like humans and represents the relation between human-likeness and appeal. Mori's examples include industrial and medical robots, theatre puppets and toy robots. The graph shows that the more human-like the robot or puppet, the more appealing the object is to humans. However, there is a sudden and deep curve in the graph (the "uncanny valley") for objects that closely resemble humans but are somehow "off" or that appear too lifelike without being alive, implying a mismatch between appearance and behaviour (or absence of behaviour). That leads to a disturbing or unsettling, "eerie" effect on humans and is augmented by movement which steepens the curve. In the uncanny valley, affinity turns into fear or repulsion. Mori's uncanny valley has led to the advice that it is better to avoid too human-like representations in robots. Mori advised that caricatured representations might be more useful or effective than realistic representations because of the uncanny valley phenomenon.

It is, however, not clear which dimension(s) of experience the uncanny valley precisely refers to. Mori's (1970) original Japanese term *shinwakan* (しんわかん, a familiar feeling, or something between affinity and affection) has been translated in different ways, such as familiarity, likeability, affinity, empathy, or – when the feeling is lacking – eeriness (Złotowski et al. 2015, p. 2). Accordingly, it is difficult to compare results of studies of uncanniness in robots as different studies may have measured different constructs.

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[7] It is possible that our relation or interaction with non-human animals is not a matter of anthropomorphizing them, i.e. that we do not *attribute* mental states to them but experience the inner life of animals in a more direct way, similar to the way we experience the inner life of fellow humans. In how far that would affect the idea that humans anthropomorphize pet/animal-like social *robots*, remains unclear.

It is, however, important to note that these feelings of familiarity, likeability, affinity, affection, … are not equal to the experience of alterity, even though they may of course affect the experience of alterity. In one of the most highly used and cited questionnaires in the field of human-robot interaction, the Godspeed questionnaire series, likeability is measured separately form anthropomorphizing. In this questionnaire, the concept of likeability is measured with items like the experience of friendliness, kindness, pleasantness, …, whereas the concept of anthropomorphizing (or anthropomorphism as it is called in the questionnaire) is measured with items like the attribution of consciousness, human-likeness, lifelikeness, naturalness and elegant movement (Bartneck et al. 2009). Therefore, the uncanny feeling experienced in some instances may be an indicator of (a lack of) likeability but may say little about anthropomorphizing or – a fortiori – the experience of alterity.

Jochum and Goldberg (2016) shed a different light on the phenomenon of the uncanny by interpreting it in relation to anthropomorphizing robots. Two categories of the uncanny are identified. First, there is the *representational* uncanny, triggered by objects that *look* lifelike. Mori (1970) focused on this category of the representational uncanny and emphasized the physical design of robots. Second, there is the *experiential* uncanny, triggered by non-humanlike phenomena that behave in ways that signal awareness. The experiential uncanny turns away from human-likeness (robots evoking the human form and shape) and hinges on the experience that provokes a certain degree of uncertainty or ambiguity about the authenticity of experience or the "aliveness" of an object. Harking back to Sigmund Freud's essay on the uncanny (with which Mori was not familiar), Jochum and Goldberg (2016) point out that the uncanny is essentially an *awareness of awareness*. Thus, instead of a failure in robotics, it may as well point to a success. The uncanny robot is not simply eerie, but capable of raising in humans the suspicion of the robot having awareness – a possibly unsettling experience of alterity. Thus, the experiential uncanny is about the spectator's experience of perceiving a robot as if it were alive and, in some sense, aware – animacy and awareness being intimately related. This experience leads to a heightened state of awareness in the human. Thus, the uncanny is not triggered by the machinic or mechanical properties of the robot, but rather by the possibility of sentience in the robot. The experiential uncanny is very close to the experience of alterity: one suspects a technological device to be aware, sentient or conscious. This uncanny experience of alterity, however, is tinged with doubt.

This interpretation of the uncanny does not require the robot to be human-like in appearance, as was the case in Mori's account. Human-like appearance – or a realistic appearance in general – may be less important a factor for anthropomorphizing and the experience of alterity than it is sometimes assumed. In the second part, we look at the aesthetics of technological others and how character design may be more important than realism when inviting humans to build emotional attachment with an artificial other. Realism is not always convincing – a phenomenon long known in the arts, especially in visual art and animation film. It is not a coincidence that the success of digital companions described above (see Sect. 3) is rooted in the art tradition of manga and anime. In the West, robot designers use insights and techniques from animation film, and animators from the Disney studios are hired in the field of robotics for their character animation skills.

5. From Realism to the Importance of Character Design for the Experience of Alterity

Manga, anime and video games portray characters or persons with a lot of appeal to the users. Character design is crucial in manga and anime and follows a particular aesthetics. In many respects, this aesthetics does not lead to characters that resemble real humans. A character that triggers *moé* is not a copy of a human and is not intended to look like a *real* human. "As long as it is female, and human in shape, a *moé* character does not have to be based on a human. You can get a lot of pleasure from anthropomorphizing objects into cute characters. You can't have a relationship with an object, but if it is in the shape of a girl then there are more possibilities." (interview with Honda Toru in Galbraith 2014, n.p.) *Moé* characters even tend to be "separated from humans and reality in some way, so you might have girls with cat ears or robot girls or alien girls. There is a sort of purity to these characters – they are not tainted by our world." (interview with Honda Toru in Galbraith 2014, n.p.)

The design of the characters in *LovePlus* and *XiaoIce* follows the aesthetics of manga and anime. The aesthetics of *bishojo* media (media featuring cute girl characters) and of *shojo* manga (manga for young girls) are related. *Shojo* manga established evoking emotional responses in readers by giving the characters larger eyes and a cute appearance. Readers get the time to know the characters in everyday situations, enabling empathy with them. The characters are often more important and interesting to the fans than the stories. Emotional responses are also heightened by giving the reader access to the thoughts of the characters (interview with Soda Mitsuru in Galbraith 2014, n.p.). These *shojo* manga strategies were transferred to the *bishojo* genre, including the games and dating sims, bringing along great emphasis on character design, enabling empathy and emotional involvement with the characters.

The manifestation of thoughts, emotions and personality in the characters is of particular importance because these are experienced as indicators of the character having an inner world. As a writer on digital trends notices referring to the Hikari Azuma character of Gatebox[8]: "Remember, this is ultimately a consumer technology product, and adding any sort of lovable personality into something which is more-often-than-not a basic physical object is incredibly rare. If modern digital assistants and robots are to evolve and integrate more into our lives, they will all need to adopt aspects of Gatebox's A.I. achievements, and the lessons learned through Azuma Hikari's personality." (Boxall 2019, n.p.) That is exactly what happened when start-ups started developing AI companions. Appeal, the behavioural manifestation of an inner world (thoughts and emotions) and personality are crucial to the design of a character that invites human to develop emotional attachment to a digital other.

In the West, Walt Disney made the creation of characters and character animation a central focus of the Disney studios. The Disney studios became famous for bringing the magical quality of life to character animation. Character animation is an important and specialized area in making animation films and its primary aim is to bring animated characters to life, creating the illusion not only of life, but also of an inner world of thoughts, emotions and personality. Fred Moore, one of the artists at the Disney studios, realized how important it is to let the people see the characters think. Disney's goal was to hit the audience in an emotional way. "We seem to know when to 'tap the heart'" (Disney, cited in Thomas and Johnston 1981, p. 119). In order to tap the heart of the audience, the characters need to manifest an inner world. One of the principle means to achieve this in animation film is by changes of expression and believable acting of the characters. To design a character in accordance with the principles of animation makes possible stronger attitudes, better acting and more personality (Thomas and Johnston 1981, p. 126).

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[8] Gatebox is a virtual assistant developed by Vinclu Inc. The virtual assistant has the shape of a hologram that depicts the avatar of a vocaloid, Hatsune Miku, a singing girl (in a glass tube). Another Gatebox version brings the anime character Azuma Hikari. Its aesthetics is in line with Japanese (*bishojo*) manga and anime. It not only has the same functionalities as other smart home systems such as Alexa by Amazon (allowing the user to control the lights, play music, ask questions, get the weather report, set reminders with simple voice commands, etc.), but also sends personalized, caring (voice- and text-based) messages to the user.

Frank Thomas and Ollie Johnston, two chief animators at the Disney studios, formulate the principles of animation (Thomas and Johnston 1981). Many of these could – and some do – inspire robot design that aims at life-like machines. We look at three examples: the principle of arcs, the principle of exaggeration and the phenomenon of appeal. The principle of “arcs” says that few living organisms are capable of moves that have a mechanical in-out and up-down precision. They rather follow a slightly circular path or arc (Thomas and Johnston 1981, p. 53). In robotics, it is known that natural movement, i.e., following not straight lines but curves, has a positive effect on anthropomorphizing, but only when the robot’s full body is visible (Kuz et al. 2013).

A second principle taken from animation is “exaggeration”. The following anecdote explains how exaggeration relates to realism and believability. “There was some confusion among the animators when Walt first asked for more realism and then criticized the result because it was not exaggerated enough. In Walt’s mind, there was probably no difference. (…) When Walt asked for realism, he wanted a caricature of realism. One artist analyzed it correctly when he said, ‘I don’t think he meant ‘realism.’ I think he meant something that was more convincing, that made a bigger contact with people, and he just said ‘realism’ because ‘real’ things do [make contact with people].’ Walt would not accept anything that destroyed believability, (…).” (Thomas and Johnston 1981, pp. 65-66). Disney understood that believable characters are not copies of reality but are in a number of ways caricatured or exaggerated. Similarly, developing believable social robots with the aim of “tapping the heart” of people, requires targeting character design in social robots. Nor a cartoon neither a robot must be realistic for it to be convincing or believable: “A lack of trust can result in the robot never being used yet pursuing expressiveness and a cartoon style in robot design can create an emotional connection that fosters trust.” (Mobed et al. 2024, p. 2416) Like in animation film, what matters is “contact with people”, and realism is not a prerequisite for that.

Third, in animation film, but also in robot and conversational agent design, the artificial other should be appealing. Appeal does not boil down to cuddliness or softness. It is the pleasing and fascinating quality that makes a person enjoy looking at a drawing or a design. Appeal is to an animated drawing what charisma or “presence” is to a live actor. And it may be what social robots and conversational agents need too, as is testified by the following remark on Xiaoice. “For now, Xiaoice’s relationship with its users only looks likely to deepen. In August [2021], the company unveiled a new suite of features designed to further enhance the bot’s appeal. People can now create their own personalized virtual partner, selecting their name, gender, appearance, and personality traits.” (Zhang 2020) The display of weakness in “weak” robots (see Sect. 2) makes them believable characters, able to emotionally “tap the heart” of humans. However, their success may be more a matter of designing robots with appeal, personality and the manifestation of an inner world than a matter of “weakness” per se – weakness being only one way of designing technological others that are believable characters.

When developing appealing characters, Disney studio animators realize that it is much more important to design the personality of the character than a character that resembles reality. For example, when trying out different possibilities for the character Sir Hiss in the cartoon *Robin Hood,* they aimed at the following: "If he was in a real hurry […] he would hop along on the end of his tail, pulling his coils up like a skirt. We wanted him to move in a way that was special to him – not like Kaa [from *The Jungle Book*]. We were no longer restricted by a real snake's anatomy or construction, because with this much character development we were caricaturing a personality more than a reptile." (Thomas and Johston 1981, p. 435)

Similarly, targeting human feelings requires social robots or conversational agents that are well-designed and have appealing characters. Techniques from animation film can be used in social robot design, especially for designing caricatured robots (Fong 2003). For example, the expression of emotions and the overall character design is of crucial importance for the functioning of sociable or relational robots such as Kismet and later Leonardo and Huggable, developed by Cynthia Breazeal and her team at MIT. Scheeff and colleagues (2002) also mention the work by Disney animators Thomas and Johnston as a reference book when searching for inspiration in creating lifelike characters in social robot design. They aimed to make Sparky a friendly social robot that easily approaches humans, but when suffering abuse Sparky gets angry and can even charge the abuser. Sparky has an expressive face and whole-body movement that expresses its emotions. Even though the robot is not anthropomorphic or zoomorphic, and clearly built of metal mechanical parts, moving about on little wheels, it clearly was a recipient of compassion (except from older boys) when it was sad, nervous or afraid (Scheef et al. 2002).

Character design is thus important in establishing relations with humans. Neither *moé* nor warm feelings towards robots, conversational agents or animation characters require the “other” to be humanlike or, more broadly, realistic. A robot need not fool us to be anthropomorphized. Realism is not a prerequisite and, more generally, humans don't need a copy of a human or another animal to experience a robot as believable. If anime and Disney characters are believable, it is not because they resemble reality. Realism does not equal believability – something actors and animators know all too well. It is well-designed characters, i.e. characters that manifest an inner world and personality — that seem to be crucial.

But even in the case of very human-like robots (androids) the design of the character is crucial for the experience of alterity. Bottenberg (2015) observes that the answers humans try to solicit from an android are existential-phenomenological in nature. That means that the android is less used to retrieve information, but rather it is expected to express its thoughts on topics such as what it is like to be a robot, if the android dreams, what the taste of electricity is, and the like. As one of the interviewers of Bina48 reports: "Like any self-respecting chatbot, Bina48 could visit the Internet to find answers to factual questions. She could manufacture conversation based on syntactical rules. But this robot could also draw on a database of dozens of hours of interviews with the real Bina. She had a 'character engine' – software that tried its best to imbue her with a more cohesive view of the world, with logic and motive. It was Bina48's character I was after." (Harmon 2010, cited in Bottenberg 2015, p. 179) In contrast to merely information-oriented questions, the existential-phenomenological questions probe the experience of the android and seek for indicators of awareness and alterity in the answers and behaviour of the robot.

6. The Experience of Alterity and Character Design in Robot Art

The field of robotics understands we need social robots with well-designed intelligent characters for greater user engagement. That requires a combination of good AI and good artistry (Hanson et al. 2009). The aim is to advance robotics as "a medium of character art" and to test the results with human users (Hanson et al. 2009, p. 9). The hope is expressed that intelligent character robots can become a highly influential artform and entertainment medium (Hanson et al. 2005, p. 26). It is pointed out that the arts have a tradition of successfully depicting people (from Rodin's *Thinker* to Disney's simulacrum of Abe Lincoln) and it is this tradition of the artful representation of humans that Hanson wants to extend to intelligent robotics. Hanson Robotics sought to enable artists to drive the engineering requirements in the context of the character design of a social robot. The artists included former Disney character designers and sculptors who designed, for example, the look and behaviour of Zeno RoboKind, a walking, expressive character prototype. The artists also designed the story behind Zeno's evolution into a hero robot. The overall goal is to develop an intelligent (and in this case anthropomorphic) agent that is imbued with personality and character enough to the user to forge a simulated relationship.

Vice versa, the contemporary world of animation and illustration has a lively interest for robots. For example, the link between the art of character design in animation and illustration and robotics is also explored at the Pictoplasma Festival, an international festival that focuses on contemporary character design and art. One of the many speakers was Jan de Coster, a Belgian artist who developed a passion for characters and explores the boundaries of human-robot relations. The robot designs inspired by character animation techniques, however, are still roughly anthropomorphic or zoomorphic in shape. This section explores if we can go further in leaving realistic appearance behind when designing meaningful human-robot interactions based on anthropomorphizing and an experience of alterity.

Hanson correctly observes that humanlike representations are not avoided in the visual arts, on the contrary, and suggests that any level of realistic depiction can be socially engaging if the aesthetics is well designed. According to Hanson (Hanson et al. 2005; Hanson 2006) and in line with the visual arts, good aesthetics may be an answer to Mori's "uncanny valley" because human reactions to an anthropomorphic depiction are more strongly related to good or bad design than to its level of human realism. In other words, and in line with the experiential category of the uncanny (see Sect. 4), any level of realism or abstraction can be appealing. Therefore, avoiding (or creating) the uncanny effect would depend on the quality of the aesthetic design and would not be a function of the level of realism. Moreover, if the illusion of life can be created and maintained, the uncanny effects may be mitigated. Robot art can help us further understand how character design may be a major factor in establishing a meaningful or engaging relation with robots, independent of realism.

Robot art is a field per excellence where the potential of the experience of alterity is explored without relying on realism. Robot art mostly does not mimic humans or other living creatures, but it does exhibit behaviour associated with living creatures. Sandry (2016) focuses on artworks that show the potential of the experience of alterity in interactions with non-humanoid robots. She prefers to focus on non-humanoid robots because commonality (or likeness or realism) is not a prerequisite for the experience of alterity. Therefore, Sandry turns to works of art that challenge the idea that people withdraw from interacting with overly non-humanoid things that are uncanny or unfamiliar. In these artworks, humans encounter "others whose alterity is overtly represented in their form and behaviour" (Sandry 2016, p. 180). "Alterity" is partially used by Sandry (2016) as a term inspired by Emmanuel Levinas and operating in opposition to "commonality", partially as a term indicating that an "other" is present in the interaction. Two artworks are worth exploring. One is the robot *Petit Mal* by Simon Penny (1995). Petit Mal consists of two wheels of a bicycle and it has a kind of neck and head sticking out. It is almost the opposite of a high-tech robot. Penny is interested in the emotional aspects of our relationship with machines and wanted to create a robot that is nimble and with "charm", giving the impression of being sentient. Petit Mal cannot speak and can only communicate through whole-body movements. The robot looks very machine-like but gives the impression (to humans) of being expressive and sentient. Petit Mal is described as having a personality that is gentle, cautious, polite, and respectful, potentially also expressing a wish to be treated respectfully in turn. The whole-body movements of Petit Mal in interaction with humans give it "a great deal of character and personality" (Sandry 2016, p. 184).

Another work, *Fish-Bird* (2004-2006) by Mari Velonaki, consists of two wheelchair-like robots, Fish and Bird. They are not anthropomorphic or zoomorphic and have, in contrast to Petit Mal, no head or neck. The work was realized in collaboration with roboticists at the Centre for Social Robotics, Sydney University. Velonaki and Rye (2016) present several case studies of collaborative art-robotics projects, including *Fish-Bird,* to see how an engaging experience can be designed for humans interacting with robots. Their aim is to show that robot behaviour is more important than appearance for an engaging experience in human-robot interaction. Similarly to Petit Mal, Fish and Bird manifest individual personalities through whole-body movement in response to humans. Apart from whole-body movement, they also produce pieces of text printed by a device under the seat of the wheelchair. Both movement and text create a sense of the robots being a person. Their personalities are described as rather tentative and nervous, and their personality and mood are communicated through movement. Bird is the more outgoing robot showing more approaching behaviour whereas Fish is more reserved and shows more inhibited behaviour. The contribution of personality to the experience of alterity is only implicitly thematized even though it plays an important part in the attribution of alterity and sentience to the robots. " (...) the unusual and unexpected nature of these wheeled robots, and the clarity of their individual characters, ensures that people are continually reminded of the robots' absolute otherness." (Sandry 2016, p. 186) Velonaki and Rye (2016) emphasize that Fish and Bird represent characters without being anthropomorphic or zoomorphic and without being "cute".

The above examples illustrate that robots that are well-designed characters expressing personality, emotions and thoughts, need not be realistic, human-like or pet-like for humans to anthropomorphize them.

7. Conclusion

This chapter looked at the contribution of art in the design of social robots and AI-driven conversational agents. Anthropomorphizing technological others is driven by feelings. Even if humans *know* that the robot is a machine, they *feel* that the robot is more than that and treat it as a social partner. The human capacity of bringing inanimate objects, including robots, to life and their ability to experience alterity in technological others is crucial for developing emotional attachment. This process differs, however, from building human-human relations, which does not rely on acts of anthropomorphizing. Nonetheless, it seems humans may have psychologically intimate and emotionally engaging relationships with social robots or conversational agents based on a pathway different the way human-human relations are built and perhaps unique to human-technological other relations.

Human-like appearance – or a realistic appearance in general – may be less important a factor for anthropomorphizing and the experience of alterity than it is sometimes assumed. In the second part, we examined the design aesthetics of conversational agents and social robots, demonstrating how character design can be independent of—and more important than—realism when inviting humans to form an emotional attachment to a technological other. Technological others need not be realistic, human-like or pet-like, for humans to anthropomorphize them. Instead, good character design, enabling the believable expression of personality, emotions and thoughts, is required for authenticity of relationship with technological others. Art forms like manga-inspired video games and Disney animation films have inspired the field of robotics by putting believable character design at the center to tap the heart of humans. By moving beyond the necessity of realism, the development of social robots may indeed become an important branch of 21st-century art.

In sum, the experience of alterity is based on the interaction of at least two main factors. On the one hand, humans are capable and willing to anthropomorphize a broad range of lifeless objects. On the other hand, the arts can help bring life (including mental life) to artificial others. Experiencing alterity in technological others results from this interaction. Appealing characters invite humans to develop emotional attachment to a technological other, without realism being a prerequisite.

The above opens up many questions concerning the possibility of "resonance" with conversational agents and social robots, i.e. an unpredictable relationship where you are truly moved by something and in which you respond in a way that is transformative (Rosa 2022). According to Rosa, for a "resonant" relationship to exist between a subject and something, it must escape total human control and the responsiveness of that something should not be based on sheer contingency. He argues that, e.g., a robot pet can never be a true partner in resonance because it lacks the uncontrollability (*Unverfügbarkeit*) that is essential to a living relationship. Interestingly, Rosa thinks that resonance can exist when the other speaks with a voice of its own, manifesting character, a will of its own or at least an inner logic (Rosa 2022, p. 65). These requirements closely mirror character design in the context of conversational agents and social robots, potentially compensating for the effects of their predictable, ceaseless availability and support. Granted, this does not diminish the profound difference between the pathways followed to form a relation with a fellow human versus a technological other.

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